

REVISION OF *HESTHESIS* (FAM. CERAMBYCIDAE), TOGETHER WITH
THE DESCRIPTION OF A NEW GENUS AND SPECIES OF
THE BUPRESTIDAE.

By H. J. CARTER, B.A., F.E.S.

(One Text-figure.)

[Read 31st October, 1928.]

HESTHESIS Newm.

The genus *Hesthesis* contains what are known in Australia as the "wasp" longicorns and these are found commonly on flowers of *Leptospermum*, *Eucalyptus* and *Angophora*. In life their jerky, restless movements, their short elytra and evident wings make their resemblance to some of the Thynnid wasps very remarkable, especially in the females with their shorter antennae. In most species it is curious that the females are much more common than the males. This resemblance is so strongly marked in *H. ferruginea* Boisd. to *Exeirius lateritus* Shuck. that I have in early collecting days had cause to regret a hasty seizure and hastier release of the wasp, while on other occasions allowing the longicorn to go scot free, though a desirable capture. Mr. J. E. Dixon, of Melbourne, a keen entomologist and observer, has bred out *H. cingulata* Kirb., from "mallee" *Eucalyptus* roots, and *H. plorator* Pasc., from the roots of *Leptospermum scoparium*. Indeed it is to the work of this naturalist that I am indebted for determining with certainty the ♂ of *cingulata*, which I found nowhere so labelled in Australian collections,* though sometimes it was confused with *H. moerens* Pasc., which it somewhat resembles except in the shape of its elytra.

So distinct is the genus that it forms a separate subfamily in the Junk Catalogue, edited by Professor Aurivillius. Of the thirteen names included here, *auricoma* Newm., must be transferred to another genus. It was described as *Necydalis auricomus* in the same paper as that in which Newman described the genus *Hesthesis*, giving a list of the three species to be included—*variegata* F., *ferruginea* Boisd., and *cingulata* Kirby—and adding a fourth *H. bizonata*. Its inclusion under *Hesthesis* is doubtless due to the suggestion contained in Lacordaire's note (Lac., T. viii, p. 478). A letter from Mr. K. G. Blair to me, I think, solves the problem. He writes: "There can be little doubt from the description that it" (*Necydalis auricomus* Newm.) "is *Agapete kreusleri* Pasc., and this probability is strengthened by a curious error in White's *Cat. Col. Brit. Mus.*, in which Pl. v, fig. 4 is credited to *A. carissima* Newm. (an error repeated in Aurivillius' Catalogue). From the description of this it differs strongly, also from Saunders' figure in *Trans. Ent. Soc. Lond.*, and it appears probable that the name *A. carissima* Newm., should really have been *A. auricoma* Newm. At any rate, the figure represents *A. kreusleri* and the species is indicated by White as being in the British Museum. Of *A. carissima* White (= *vestita* Pasc.†) we have

* A similar thing is true of *H. ferruginea* Boisd., which in all Australian collections known to me was only represented by females.

† For this synonymy I rely on Newman's description and Saunders' figure compared with Pascoe's type (K. G. Blair).

only Pascoe's specimens which did not come in till 1893. Of *A. kreusleri* Pasc., we have one specimen (no name attached) received in 1853, with the legs and antennae of one side in the position of White's figure and this example was no doubt the original of the figure assigned to *A. carissima* (recte *auricoma* Newm.)."

H. bizonata Newm.—It is unfortunate that neither Saunders nor Pascoe identified Newman's species of which the unique type was said to be "in Mus. Soc. Zool. Lond." I had already concluded by the process of exhaustion that either *vigilans* Pasc. or *ornata* Saund., was synonymous with *bizonata* when I received Mr. Blair's letter noted above, in which he says "*H. bizonata* Newm. We have a single ♀, the only data "New Holl. Vigors Coll. 59.57", that agrees exactly with the description". Here follows a detailed description which clearly indicates *H. ornata* Saund., except for rather darker legs "apical half of femora being black". With this slight variation I have little hesitation in placing *ornata* Saund., as a synonym of *bizonata* Newm.

H. moerens Pasc. = *H. murina* Pasc. — *vide* K. G. Blair, who has sent me an example that has been compared with the types of both. Curiously, all the examples examined, of which 25 are before me, are males. It is a rather common species in the neighbourhood of Sydney. The complete absence of females to match this species is mystifying. Mr. Blair suggests that it is the male of either *plorator* Pasc., or of *cingulata* Kirby. The latter alternative may be ruled out, since I have before me evident males of *cingulata*, in which the elytral hind margin corresponds with that of the females. Similarly I have many of both sexes of *plorator*, chiefly from Victoria and Tasmania where it is common. I have not seen a Sydney example of *plorator* which is readily differentiated from *cingulata* by the spinose sutural hind angle of the elytra. This is not characteristic of *moerens* Pasc., apart from the different ventral bands of these species.

H. vigilans Pasc.—This is also an exception to the rule of prevalence of females. Only three females occur amongst the 25 examples before me.

I have both sexes of all except *moerens*. Thanks to the courtesy of the several Australian Museum authorities I have been able to examine long series of nine of these. The tenth, *H. bizonata* Newm. (= *ornata* Saund.), appears to be rare, five examples only being identified.

Three new species—or subspecies—have been added.

Characters.—The long series available has enabled me to study the variations and distribution of the several species, and to obtain some knowledge of the constant characters that delimit them.

The species vary considerably in size, *ferruginea*, *cingulata* and *angulata* being the largest and *acutipennis*, *montana*, *variegata* and *ornata* the smallest; but in all species the male is generally much smaller than the female. Thus in *ferruginea* an average of eight males gives 18 mm. long; of eight females, 27½ mm.; in *acutipennis*, males range from 10 mm. long, while females measure up to 19 mm. long. Similarly with other species. The males of *cingulata*, *ferruginea* and *vesparia* are generally darker in colour than the females.

The only structural characters by which the species can be separated are (1) the hind margins of the elytra and (2) to a much less extent, the sides of prothorax. This latter character is apt to be illusive, the sides being more often subangulately widened than as stated by authors, *acutipennis*, *montana*, *variegata*, *ornata*, *vigilans* and *crabroides* often—though not invariably—showing a decided angulation. In the other species the sides are variably, but more or less strongly, rounded.

The hind margins of elytra are thus the most defined of the structural characters, and the species fall into two fairly well distinguished groups on this alone,

(a) having hind margins obliquely divergent—*angulata*, *cingulata*, *assimilis*, *plorator*, *montana*, *ferruginea* and *acutipennis*, the last very slightly and variably.*

(b) hind margins more or less truncate—the remaining species.

The number, colour and arrangement of the pale pubescent bands on the abdomen are subject to little variation in the same species, with a few exceptions. These abdominal bands vary with the species, both in the case of the dorsal and ventral bands, but are generally constant in the same species. These bands are not true zones, that is, are not carried round the body, except the one, or two, near apex.

Thus in *ferruginea*, *acutipennis* and *montana* the bands on the fourth and fifth dorsal segments are continuous with the third and fourth ventral. In *cingulata*, *plorator* and *vigilans* the dorsal fourth segmental band is continuous with the ventral third; the bands near the dorsal base not corresponding with ventral bands.

These bands are in general as follows:—

Dorsal	Ventral	
2	1	<i>moerens</i> Pasc.
2	2	<i>bizonata</i> Newm., <i>vigilans</i> Pasc., <i>crabroides</i> , n. sp.
2	3	<i>angulata</i> Pasc., <i>cingulata</i> Kirb., <i>plorator</i> Pasc.
3	2	<i>variegata</i> F.
3	4	<i>acutipennis</i> Pasc.
3-5	4	<i>montana</i> , n. sp.
4	3 or 4	<i>assimilis</i> , n. sp., <i>vesparia</i> Pasc.
4	4	<i>ferruginea</i> Boisd.

To which the following variations occur:—

cingulata. In the male the ventral bands beyond the basal are variably, often feebly, marked (very much as in *moerens*), but are otherwise inseparable from others normally banded. In rare cases—two females from Armidale, N.S.W., in the Macleay Museum and one in the National Museum labelled Plenty Ranges—I find Var. I, in which two or three dorsal bands occur at the base, and the ventral bands tend to a yellow colour. Var. II is a small female in the Macleay Museum, 15 mm. long, from Sydney, without any dorsal subapical band, but with two dorsal basal bands.

Distribution.

<i>angulata</i>	W.A. (King George's Sound).
<i>cingulata</i>	Vict., Tas., N.S.W. (1 ♂ in Macleay Mus. labelled King George Sound).
<i>assimilis</i>	Clarence River, N.S.W., also Swan River (?) (in Macleay Mus.).
<i>plorator</i>	Vict., Tas., S. Aust.
<i>montana</i>	N.S.W.. Mt. Kosciusko.
<i>acutipennis</i>	Q'ld., N.S.W. (1 example labelled Melbourne).
<i>variegata</i>	N.S.W. and S. Aust. (1 example labelled Beverley, W.A., in S. Aust. Mus.).

* "The type" (of *acutipennis*) "is abnormal, having the left elytron as described, the right truncate". (*fidc* K. G. Blair). With a very long series before me I find examples with more variation of elytral hind margins than in other species; in general very lightly oblique with a tendency to spinose extension at the suture.

- bizonata* N.S.W.
moerens N.S.W.
ferruginea N.S.W.
crabroides Stanthorpe, S. Q'ld.
vesparia Rockhampton, Port Denison, Dawson River, N. Q'ld.

The following species are new, or, if subspecies only, deserve description and a name.

HESTHESIS CRABROIDES, n. sp.

Black with brilliant orange markings; elytra castaneous with a wide orange band bordering the anterior, interior and posterior area and occupying the greater part. The other orange markings as follows: front of head extensively, pronotum, apical ring and isolated parts of base, metasternum, a medial and two (sometimes three) lateral spots; abdomen above with two orange bands, below with two bands, in the male basal band white, on third segment orange, in female both orange; the apical segment wholly yellow, antennae and legs orange. *Prothorax* subangulate at sides, *elytra* subtruncate at apex, with sutural angles slightly dentate, especially in the male.

Dim.—♂. 13 mm. long; ♀. 15-22 mm. long.

Hab.—S. Queensland: Stanthorpe (Mr. E. Sutton).

I am indebted to a local naturalist and keen observer, Mr. Sutton, for a long series (2 ♂, 14 ♀) of this species. At first I was inclined to consider it as a subspecies of *H. vigilans* Pasc., but after a close comparison with long series of *H. variegata* F., and of *H. vigilans* Pasc., I note the following constant differences, amidst numerous variable characters, that are best exhibited in a tabular form:—

<i>variegata</i> F.	<i>vigilans</i> Pasc.	<i>crabroides</i> , n. sp.
<i>Antennae.</i> Dark brown, basal segments reddish.	as in <i>variegata</i>	orange
<i>Elytra.</i> Brown or black, apex and base slightly yellow.	as in <i>variegata</i> , more yellow.	widely orange
<i>Abdomen.</i> Apical segment dark.	dark	red or yellow
<i>pale zones</i> , 3 above, 2 below (basal white, subapical red).	2 above, 2 below (both red).	2 above, 2 below ♂ as in <i>variegata</i> } ♀ as in <i>vigilans</i> }

Holotype and allotype in Coll. Carter.

HESTHESIS ASSIMILIS, n. sp. or subsp.

Tawny brown; front of head, basal and apical bands of pronotum, wide horse-shoe band of elytra, margins of metasternal episterna bright yellow; abdomen with four bands below and four bands above (two at base, two near apex) also yellow; antennae brown, femora (and sometimes tibiae) reddish.

♂. Head with vertex brownish-black, whole face clothed with yellow hair; *prothorax* nearly black, a medial carina on apical half, sides well and regularly rounded. *Elytra* less sharply diverging behind than in male of *cingulata* K. (also than in the female examples of *assimilis*), otherwise similar in form to *cingulata* Kirby, a narrow external area only a tawny brown, the greater part occupied by arcuate flavous band.

♀. Differs in larger size, pronotum largely clothed with yellow hair, the hind margins of elytra strongly oblique and angulate externally. Abdomen with three bands at base and four (sometimes five) bands below a clear yellow.

Dim.—♂. 17 mm.; ♀. 23-25 mm. long.

Hab.—N.S.W.: Clarence River; W. Aust.: Swan River (in Macleay Museum).

Two examples (1 ♂, 1 ♀) labelled Clarence R., a ♀ labelled N.S.W. and 2 ♀ labelled Swan R., are specifically inseparable, and suggest a subspecies of *cingulata* Kirby, of which the range is similarly wide. But in the long series examined, about fifty examples, of *cingulata*, I find the upper abdominal bands to consist of two only (with rare exceptions noted above), while the black and white of the typical *cingulata* is here replaced by brown and bright yellow respectively.

Holotype and allotype in the Macleay Museum.

HESTHESIS MONTANA, n. sp.

Black; front with minute spot (sometimes wanting), prothorax with more or less complete apical band, and sometimes with parts of a basal band, a small transverse mark on apex of elytra, two spots (at apex and base respectively) of metasternal episterna pale yellow or white; segments of abdomen with (at least) three above—one on first, others on fourth and fifth margins—and four below pale yellow or white; elytra dark castaneous, their exterior margins black. Antennae dark red, legs a brighter red, knees black; abdomen black.

Head and *prothorax* very similar to those of *acutipennis* Pasc. *Elytra* with hind margins obliquely divergent as in *cingulata* Kirby, but their sutural angle slightly produced, forming an obtuse angle, the exterior angle rounded off at the extremity.

Dim.—♂. 11-16 mm. long; ♀. 16-20 mm. long.

Hab.—N.S.W.: Mt. Kosciusko (Professor L. Harrison, Mr. A. J. Nicholson and the author).

Forty-seven examples before me show a small, narrow species very near to *H. acutipennis* Pasc., but separated by the much greater obliquity of the hind margins of the elytra. *H. plorator* Pasc. (of which a long series is before me) is separated by the constant occurrence of two pale dorsal zones and three ventral on the abdomen; the coloration is more suggestive of *plorator* and *cingulata*, the ground colour being everywhere black except on elytra. In some examples as many as five dorsal bands can be made out on abdomen.

Holotype and allotypes in the Macleay Museum.

Table of Hesthesis.

1. Apical segment of abdomen dark	2
Apical segment of abdomen yellow or red	11
2. Elytra obliquely divergent behind	3
Elytra more or less truncate behind	8
3. Elytra diverging from about half way	<i>angulata</i> Pasc.
Elytra diverging behind half way	4
4. Pale bands of abdomen, two dorsal, three ventral	5
Pale bands of abdomen otherwise	6
5. Sutural hind angle of elytra produced (dentate)	<i>plorator</i> Pasc.
Sutural hind angle of elytra not produced	<i>cingulata</i> Kirby
6. Sides of prothorax subangulate	7
Sides of prothorax evenly rounded	<i>assimilis</i> , n. sp.
7. Elytral margins strongly oblique, abdomen black, bands white	<i>montana</i> , n. sp.
Elytral margins less strongly oblique, abdomen brown, bands orange	<i>acutipennis</i> Pasc.
8. Abdomen with one defined ventral band, colour dingy	<i>moerens</i> Pasc.
Abdomen with two defined ventral bands, colours brighter	9
9. Abdomen with three defined dorsal bands	<i>variegata</i> F.
Abdomen with two defined dorsal bands	10
10. Ventral bands orange	<i>vigilans</i> Pasc.
Ventral bands white	<i>bisonata</i> Newm.

11. Elytra obliquely diverging behind *ferruginea* Boisd.
 Elytra more or less truncate behind 12
12. Abdominal bands, two dorsal, two ventral *crabroides*, n. sp.
 Abdominal bands, four dorsal, three or four ventral *vesparia* Pasc.

Synonymy. *H. bizonata* Newm. = *ornata* Saund.

H. moerens Pasc. = *murina* Pasc.

Further evidence may show *bizonata*, *vigilans* and *crabroides* to have sub-specific value only. At present I think they are sufficiently differentiated to be considered distinct.

EPANIA AUSTRALIS, n. sp.

♀. Black nitid; head and prothorax black, with slight tendency to metallic sheen, the latter bordered castaneous at apex and base, elytra rufo-testaceous, antennae dull brown, the two basal segments castaneous, anterior and intermediate legs flavous, apices of mid-tibiae and their tarsi dark, posterior legs metallic black, abdomen with short white lateral pubescent band on each side, not connected below, a slight similar pubescence of metasternal episterna.

Head finely and closely punctate, antennae extending beyond the apex of elytra, their segments subequal (except the short second). *Prothorax* elongate-ovate, convex, contracted and finely pubescent within the apical and basal borders; densely cellulose-punctate with short, upright pile. *Scutellum* pubescent. *Elytra* dehiscent from about half way, rounded behind, rather closely punctate with short, upright, white hairs; wings not as long as body, iridescent; legs very hairy.

♂ wanting.

Dim.—9 × 2 mm.

Hab.—N. Queensland: Cairns and Kuranda (F. P. Dodd).

Two examples, both ♀, are in the South Australian Museum with the generic determination by Mr. A. M. Lea. They correspond very closely with Pascoe's figure of *E. discolor* (*Trans. Ent. Soc. Lond.*, 1869, pl. xxi, f. 7), but the apices of elytra are not "tinged with chalybeate", the posterior legs show colour differences, and there is no mention by Pascoe of the lateral pubescence on the abdomen and metasternum, so evident in *E. australis*. Holotype in South Australian Museum.

N.B.—A second species has been sent from the British Museum, amongst some *Hesthesis*, that was taken by Mr. G. F. Bryant at Kuranda, but the antennae and two legs are wanting so that it is unsuitable for description.

The above adds another genus to the Australian list, as well as another to the many links in the chain that connects the Australian with the Malayan fauna.

THERYAXIA, nov. gen. Anthaxites. (Fam. Buprestidae).

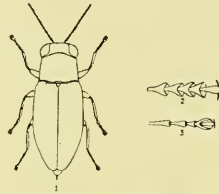
Head wider than the pronotum in front, forehead lightly convex and covered with well-marked reticulation; epistoma truncate, labrum bilobed, antennary cavities terminal, small, round, nearer the epistoma than the margin of the eye; mentum subtrapezoidal; maxillae angulately projecting at the base, antennae slender, toothed from the third onwards, the fourth and following furnished with terminal pores, at least on the apical segments. *Pronotum* wider than long, reticulated like the head, margined at sides, surface uniform. *Scutellum* of moderate size. *Elytra*: Surface uniform, without striae, its sculpture microscopic and silky; the posterior margins finely denticulate. *Prosternum* truncate anteriorly, finely margined, its process trifid. *Mesosternum* entirely divided, the lateral branches rather long and straight; posterior coxae straight on the anterior margin, dilated behind internally; the suture of the first two abdominal segments

clearly visible, the first suture not parallel to the following; the apex of the last segment rounded; the whole underside more or less reticulate; the lateral prolongation of the abdomen entirely concealing the metathoracic epimera.

Legs slender, femora furrowed along their lower margin, tibiae subcylindric, tarsi elongate, their first segment as long as the succeeding two combined, the fifth very short, not extending beyond the fourth.

THERYAXIA SUTTONI, n. sp.

Rather elongate, convex, its greatest width at the posterior fourth of its total length. Head and pronotum coppery, the latter turning to green at the lateral margins; elytra green bordered with red, except for a narrow green margin; underside coppery; antennae black, except the last two segments.



1.—*Theryaxia suttoni*, n. sp.
2.—Tarsus of *Melobasis*. 3.—
Tarsus of *Theryaxia suttoni*.
(Drawn by C. Deane.)

Head very wide, eyes large, very prominent and regularly continuous with the frontal outline, their anterior margin nearly straight; antennae extending to the front coxae, the first segment clearly longer than the two following combined, the second much longer than wide, a little shorter than the third, the rest subequal and furnished with stiff hairs. *Pronotum* strongly projecting in a rounded lobe at anterior margin, sides straight, feebly converging towards the apex, base widely bisinuate, the medial lobe widely rounded, sides margined by a very fine carina not extending to the front margin. *Scutellum* subtriangular, very finely sculptured. *Elytra* little prominent at shoulder, widening in a straight line towards the posterior third, thence rounded and narrowed to the apex, there separately rounded and very finely denticulate; margins, also suture nearly to the scutellum finely bordered; disc extremely finely sculptured, nearly smooth at the middle, without distinct punctures; prosternal process terminated by three points, the middle one not extending to the base of the sternal cavity; anterior margin of the metasternum rounded, the meso-metasternal suture very distinct; the last abdominal sternite more strongly reticulate than the others; posterior tibiae lightly enlarged at apex; tarsi about three-fourths the length of tibiae, narrow and enlarging only from the third segment onward.

This genus belongs to a small group of the Anthaxites having the head and pronotum distinctly reticulate, a group that includes *Xenorhipis*, *Tetragonoschema*, *Anilara*, *Anthaxia* and *Agrilaxia*, from all of which it is separated by the head being much wider than the apex of pronotum and the short fifth tarsal segment.

Dim.—4.75 × 1.75 mm.

Hab.—Queensland: Stanthorpe (Mr. E. Sutton).

I am indebted to Mr. Sutton for examples of this interesting Buprestid, one of the many discoveries of this keen entomologist in an interesting district; and also to Mr. C. Deane for his drawing.